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VIITTEENNE:
YOUR REFERENCE:

BY FACSIMILE (6 pages)

VIITTEEMME:
OUR REFERENCE:

SERL27PCT
P2902PC00

To the International Preliminary Examining Authority

Dear Sirs,

Re: International PCT Application No. PCT/FI03/00797
in the name of M-real Oyj
Letter according to Rule 66 PCT

With reference to the Written Opinion dated 15 July 2004, we herewith enclose new pages 18 and 19, which replace the present pages bearing the same numbers.

Claims 1, 8 and 13 replace the corresponding claims now on file.

Claim 1 has been restricted to concern thin, multilayered base papers having a grammage 80 g/m² at the most. Basis for this limitation can be found in the description on page 5, lines 21 and 22, and on page 10, lines 10 and 11. In claim 8, the first ranges given for the product have been deleted so as to conform the scope of that claim to the limited scope of the new claim 1. The lower limit of the range has, however, been taken from the deleted range. The syntax of claim 13 has been improved.

No new matter has been introduced.

According to the new, restricted claim 1 the invention concerns a method of producing a thin, multilayered base paper, according to which method at least one fibrous layer is fitted ~~above~~ upon a second fibrous layer, which contains filler and which forms the surface layer of the fibrous product. According to the invention, the layers are formed by a technology, which in the claims has been called "multilayer technology", which also is known as "multilayer forming" or stratified forming". In the original Finnish text, the term "monikerrosrainaus" was used and we should be happy to change the English vocabulary better to correspond to that

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term, if the IPEA so deems necessary or advisable. The "stratified forming" refers to the fact that we have only one headbox and one web forming unit and that the multilayer forming is accomplished within the head box in such a way that the different furnishes (differences in fiber compositions and/or in contents of fillers and other additives) are combined so that we obtain one jet from the lips of the headbox.

We note that the IPEA is of the opinion that the same invention would be disclosed in our earlier patent application, which was published under No. WO/02092910. This is, however, not the case. In the earlier application, there is, indeed, a reference to multilayering. However, this term refers to the conventional ways of producing products comprising several layers, not the present way of producing by "stratified forming" or "multilayer forming". In the present specification, a closer definition of this technology is given by reference to FI Patents Nos. 92729 and 105118 and EP Applications Nos. 824157 and 1152086. For the IPEA's attention, we enclose a copy of Fig. 1 of FI 92729, which shows the principle of multilayer forming. As we point out in the description, our earlier application does not disclose such technology, cf. page 4, first paragraph.

The invention is further characterized in that the filler used is comprised of cellulosic or lignocellulosic fibrous, which contain light scattering particles deposited thereon.

The closest prior art ^Sis represented by U.S. Patent Application 2001/045265, which discloses a method and an apparatus for producing a multiply web, on top of which calcium carbonate is deposited during the production. In the reference, the calcium carbonate is not deposited upon fibrils but rather on the fibrous material.

In the present invention, we use a filler having the structure defined in the characterizing part of claim 1, which has been found to improve formation and structural stiffness of the surface layer. This filler, which in one of its preferred embodiments is known by the name "SuperFill", is disclosed in the other references cited and the use thereof will reduce dosing of retention agents while still keeping the system cleaner.

The invention will give rise to two considerable advantages: First, the products will become more dense and have an improved resistance to air permeability. Therefore, they will be suitable for uses where barrier properties are of importance. Second, surface smoothness will be improved. This improvement is surprisingly big and clearly better than could have been expected. If the paper is coated, the coverage of the coat is better than when conventional, mineral fillers are used, which reduces the consumption of coating materials. Also problems relating to insufficient gloss and unevenness of print (mottling) will be reduced.

Compared to the product disclosed in D1, the present invention provides a much greater opacity. According to the reference, as we mention above, the surface layers contain PCC, which has been deposited upon the fibrous material, which means that no significant densifying effect can be achieved. There is further no mention of coating of the paper in the reference.

Since the multilayered product according to the invention has great density, it is particularly suitable for coated thin paper qualities such as LWC and SC, in which penetration of the coating colour into the base paper, and even through it, is a traditional problem.

We therefore submit that the invention as defined in the new claims is both novel and differs essentially from the cited art.

Should the IPEA still have misgivings regarding the novelty or inventive step of the invention, we would appreciate another opportunity to comment on these features in writing.

Yours faithfully,
SEPPO LAINE OY

Christoffer Sundman

/mn

Claims:

1. A method of producing a multilayer fiber product, comprising a thin base paper, having a grammage of 80 g/m² at the most, the method comprising fitting on top of a bottom layer consisting of at least one fiber layer (2; 4 – 6) a second fiber layer, which contains a filler and which forms the surface layer of the fiber product (1; 3),
5 characterized in that
- the layers are formed by using multilayer technology, and
 - the filler of the surface layer (1; 3) consists at least partially of cellulose or
10 lignocellulose fibrils, on which light-scattering material particles are deposited, the maximum content of which is 85 % of the total weight of the filler.
2. The method according to claim 1, characterized in that the slush of pulp is layered in the headbox of a paper machine in such way that filler and additives are added
15 to the pulp used in the surface layer/layers of the multilayer product, after which the pulps are fed separated from each other to the headbox and then immediately combined before the lip of the headbox, where the jet of the pulp slush is directed to the wire.
3. The method according to claim 1 or 2, characterized by using a filler, which
20 comprises cellulose or lignocellulose fibrils produced from vegetable fibers by refining and screening, and having an average thickness is less than 5 µm.
4. The method according to claim 3, characterized in that the light-scattering material particles are deposited on fibrils, which correspond to a fraction that passes a 50
25 mesh screen and/or whose average thickness is 0.1 – 10 µm with an average length of 10 – 1500 µm.
5. The method according to any of claims 1 to 4, characterized in that the light-scattering material particles are inorganic salts that can be formed from their source
30 materials by precipitating in an aqueous medium.

6. The method according to claim 5, c h a r a c t e r i s e d in that the light scattering material particles are calcium carbonate, calcium oxalate, calcium sulphate, barium sulphate or mixtures thereof.
- 5 7. The method according to any of the preceding claims, c h a r a c t e r i s e d in that the proportion of inorganic salts of the weight of the filler is 75 – 85 % by weight.
8. The method according to any of the preceding claims, c h a r a c t e r i s e d by producing a three-layer fiber product, whose non-coated grammage is approximately 20 –
10 60 g/m², the grammage of one surface layer being approximately 2 – 20 g/m².
9. The method according to any of the preceding claims, c h a r a c t e r i s e d in that the ratio of the total weight of the surface layers in relation to the weight of the middle layer (layers) weight is approximately 20/80...80/20, preferably approximately 30/70...70:30, in
15 particular approximately 35:65...65:35.
10. The method according to any of the preceding claims, c h a r a c t e r i s e d in that the bottom layer comprises chemical cellulose pulp.
- 20 11. The method according to any of the preceding claims, c h a r a c t e r i s e d in that the surface layer comprises mechanical pulp.
12. The method according to any of the preceding claims, c h a r a c t e r i s e d by producing a thin, multilayer base paper, whose maximum grammage is approximately 80
25 g/m².
13. The method according to any of the preceding claims, c h a r a c t e r i s e d by producing a base paper of LWC paper, the bottom layer and the surface layer/surface layers both comprising a mixture of chemical cellulose pulp and mechanical pulp, and
30 wherein a mechanical pulp, which is rougher than that used for forming the surface layer, optionally is being used for forming the bottom layer.

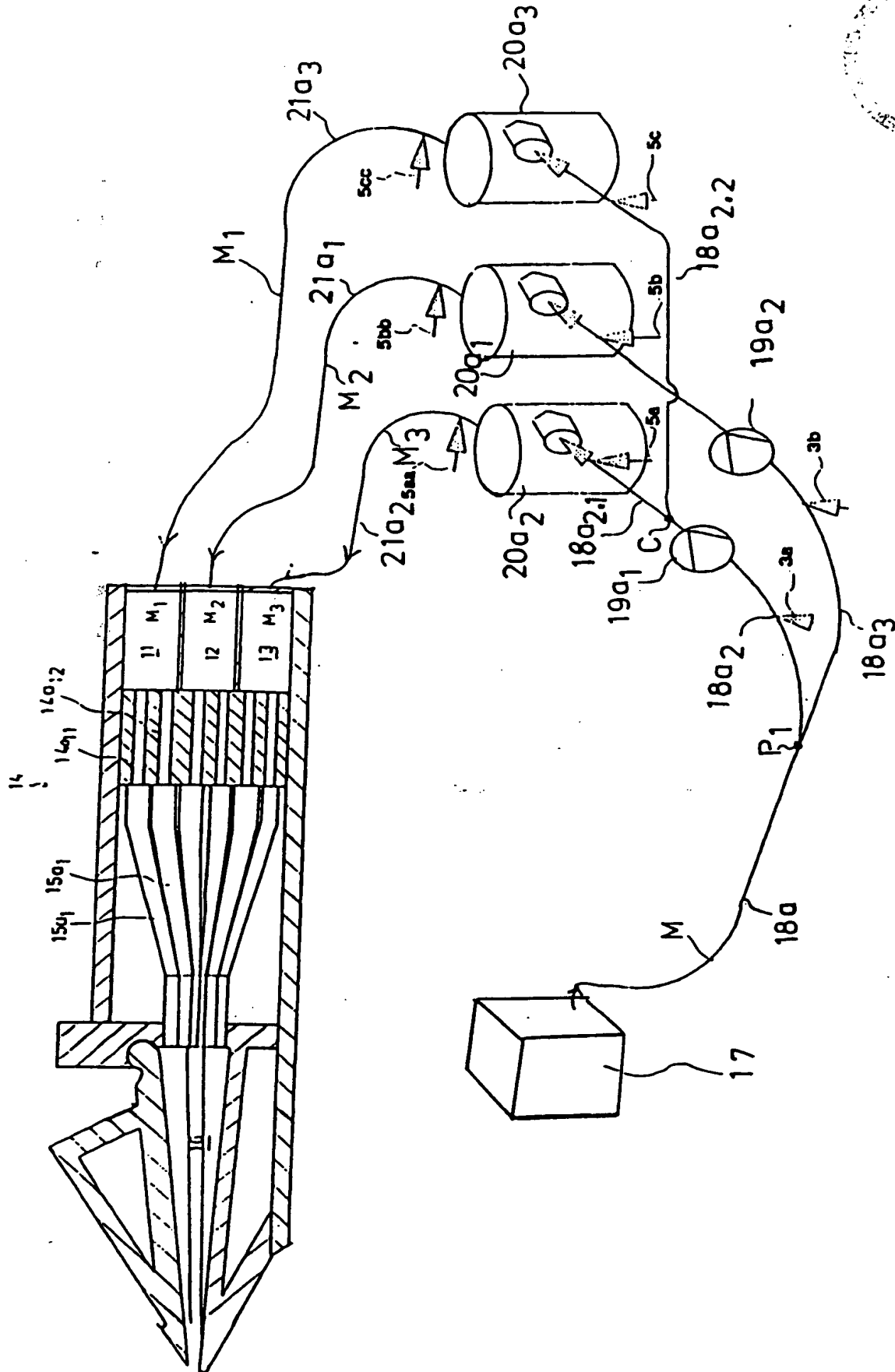


FIG 1